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Recommended Citation

Branz., M, Farrell, A., Hu, M., Liem, W. & Ballard, E. (2021). System Archetypes. Methods Brief Series 1.07: Systems Thinking Foundations. Social System Design Lab: St. Louis, MO. <https://doi.org/10.7936/c89k-d163>

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System Archetypes

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DOI <https://doi.org/10.7936/c89k-d163> Published 4.9.2021

METHODS BRIEF SERIES 1.07

K-12 education presents an incredibly complex system that makes solving problems challenging.

Often, we implement changes with the best of intentions, only to see problems get worse rather than better. Many of the structures that cause these patterns can be found all around us - in schools, in businesses, in non-profit organizations, in health systems, and in communities. By learning about these common structures or *system archetypes*, we can start to identify and anticipate them.

The purpose of this brief is to describe how education stakeholders can use system archetypes as a tool for recognizing, anticipating, and addressing the system dynamics driving the common patterns of problems in their school communities.

+ CONCEPT

Using system dynamics, we can start to identify and visually describe general patterns that are repeated in widely different contexts. System dynamicists and systems thinkers have observed some of these common dynamics and defined a set of "system archetypes" that can be applied to multiple different scenarios. System archetypes are visual descriptions of generic, recurring system structures in the form of Causal Loop Diagrams. There is no definitive list of system archetypes; there is a broad list of eight to twelve core

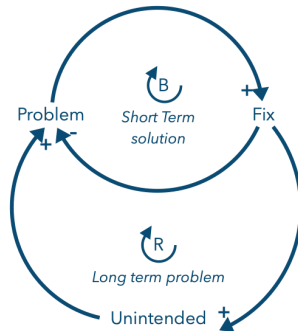
archetypes, but some even argue that four archetypes can explain all the other archetypes.

In this methods brief, we will introduce five of these archetypes through examples we have observed working with educators and students in K-12 education, and discuss how archetypes can be used by students, educators, and administrators to describe and address common problems in their work. The following five archetypes are adapted from the great resource "Systems archetypes I: Diagnosing systemic issues and designing high-leverage interventions".⁴

+ APPLYING SYSTEM ARCHETYPES IN K-12 EDUCATION

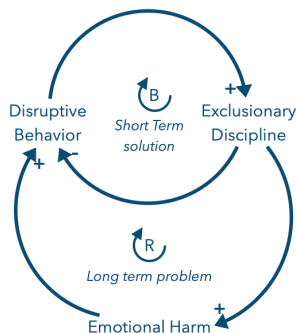
Archetype #1: Fixes that fail

Template Archetype #1



The “fixes that fail” archetype describes attempts to address a problem through a short-term fix. The fix might solve the problem in the short run, but it also generates unintended consequences that actually make the original problem worse.

Example Archetype #1

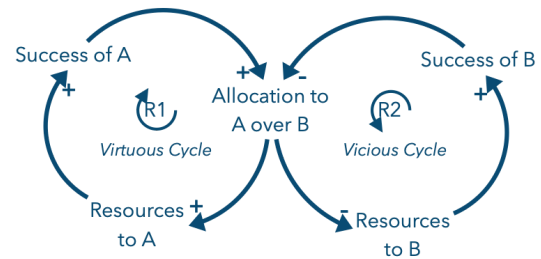


An example of the “fixes that fail” archetype tells the story of exclusionary discipline in schools. Imagine a child who had a difficult morning at home, did not eat breakfast and arrived late to school. She is disruptive in class. A short-term solution for the teacher would be to send the child to time-out, suspension, or the principal's office for the rest of the day. The teacher is employing a short-term fix; they are removing the disruption from the classroom. However, over time the child becomes even more disengaged from school, feeling that there are no adults

she can trust. She begins to see herself as a “bad” student and becomes even more disruptive in class.

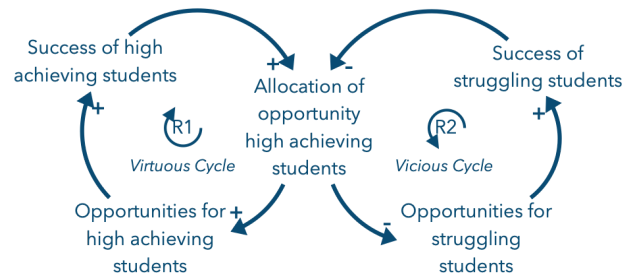
Archetype #2: Success to the successful

Template Archetype #2



The “success to the successful” archetype shows competition for resources between two groups (Group A and B). Group A, the group that starts out as more successful, is rewarded with more resources and becomes even more successful. Group B, the group that is less successful to begin with, gets trapped in a downward spiral.

Example Archetype #2

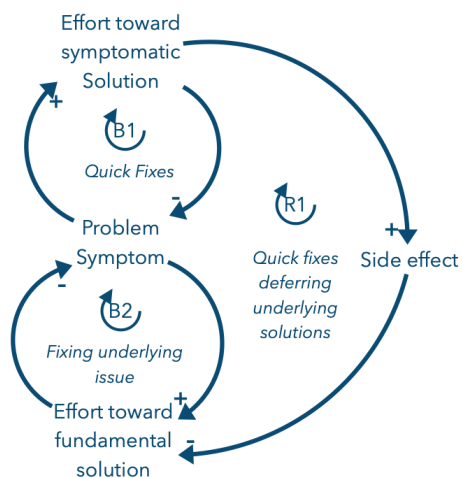


The “success to the successful” archetype can be used to describe many different educational disparities. In this example, imagine that student A starts kindergarten already knowing how to read and cooperate with other children (“High Achieving Student”). Student B does not recognize the alphabet and has not been in a classroom setting before (“Struggling Student”). Once the teacher gets to know both these children, the prepared Student A might get bumped up to a higher-level reading

group, nominated for a special science program, and eventually tracked into advanced placement classes with teachers who have higher expectations. As student A succeeds, opportunities continue to come their way. Student B struggles in class. They do not get the opportunity to participate in the special science program, so student B is not excited about science. They become less interested in school and begin to withdraw. When the teacher passes them up to the next grade, they start a math class without having the foundations they need. You can see how initial disparities can become quickly reinforced.

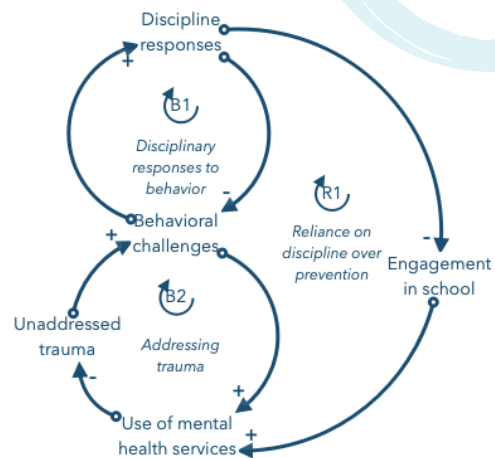
Archetype #3: Shifting the burden

Template Archetype #3



The “shifting the burden” archetype shows what happens when we address the symptoms of a problem with a quick-fix solution. This solution is easier and faster than creating an upstream solution to the problem, and we are often meeting a very real, urgent need for a student. However, the quick-fix to the symptoms may actually impede our ability to invest time and energy to the fundamental solution. This makes it even harder to apply a fundamental solution and even more tempting to rely on quick fixes. Thus, the problem cannot be completely solved.

Example Archetype #3

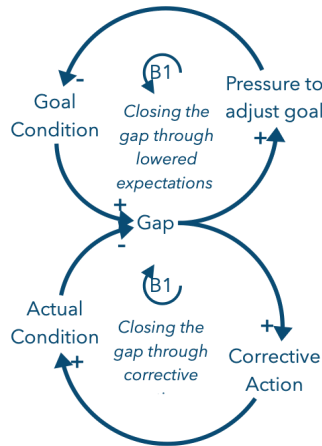


This example of the “shifting the burden” archetype describes disciplinary responses to behavioral challenges as a quick-fix solution. Children who display behavioral challenges at school are often exhibiting symptoms of unaddressed trauma. A fundamental solution would be to invest in mental health services for children with behavioral challenges. However, trauma treatment takes time, so there is a delay between receiving mental health services and healing from past trauma. A more immediate “solution” is to discipline children with behavioral challenges in order to put a stop to their disruptive behavior.

Unfortunately, a child who is disciplined may feel disconnected or emotionally unsafe at school, making them less likely to trust the adults around them. Without trusted adults, the child is less likely to share their mental health concerns or be referred to mental health services. Behavioral problems are likely to persist without mental health treatment for the trauma. Overburdened schools in a constant state of crisis begin to rely on discipline rather than investing in the mental health services that could address the fundamental problem of trauma. The behavioral challenges persist.

Archetype #4: Drifting goals

Template Archetype #4



The “Drifting Goals” archetype helps us describe the impact of lowering expectations. The difference between the desired outcome (“Goal”) and actual performance (“Actual”) is called a “gap”. One way to close this gap is to take corrective action, which, after time, improves actual performance. Another way to close this gap is to lower the goal by settling for less. When the goal is lowered, the gap shrinks, leading to less need for corrective action.

Example Archetype #4

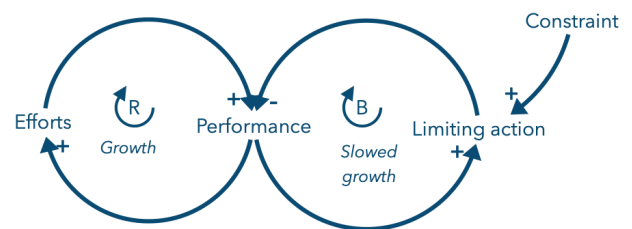


We see the “Drifting Goals” archetype in the educational system. When there is a gap between a

child’s actual learning and the proficiency that is desired, a teacher could take corrective action by tutoring the child or referring them for extra academic help. Over time, the child would improve and the gap would close. Unfortunately, an overburdened teacher may not have time to take this action with all children who are struggling. Instead, the teacher may simply lower their expectations, recognizing that it is “unrealistic” to get all these 3rd graders up to the standards given that they have been “behind” since kindergarten. With a lowered goal comes a smaller gap and less incentive to take corrective action.

Archetype #5: Limits to growth

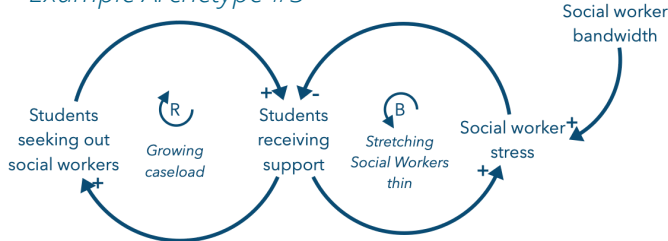
Template Archetype #5



The “Limits to Growth” archetype illustrates a reinforcing growth loop: as more effort is applied, performance improves and more effort is applied. As the growth continues, a balancing loop kicks in, driven by an external limiting condition or resource constraint. This creates a limiting action which decreases performance. Despite efforts to keep increasing growth, the balancing loop counteracts it and limits the amount of growth possible.



Example Archetype #5



An example of the “limits to growth” archetype can be found in school social work. Imagine that a school has a budget for two social workers. As the students get to know the social workers and feel supported by them, word spreads that there is help available for kids who need it. Students seek out the social workers, who in turn provide support. Unfortunately, there is a resource constraint on the amount of time a social worker has. At first, the social workers can see more and more students who drop by their offices throughout the day. But at some point, they become too busy to provide quality individualized support. The social workers are now providing less support. Word begins to spread among students that the social workers are too busy and do not really care about the students, so students stop seeking support from the social workers. Without an increase in the number of social workers, there is a limit to the growth of the school mental health program.

+ HOW TO USE SYSTEM ARCHETYPES IN PRACTICE

- *To avoid repeatedly falling into traps:* System archetypes can show relatively simple underlying dynamics that help explain and communicate problems in multiple different domains. This can help us anticipate a problem or avoid common traps in our lives, organizations, and communities.
- *To find different solutions:* System archetypes

can guide us toward a different perspective on what is causing a problem. This different perspective might implicate different solutions.

- *As a communication tool:* System archetypes can serve as a simple, visual representation of a problem to facilitate communication among a team about solutions.
- *As a foundation for building more complex models:* System archetypes can be combined with other archetypes and balancing or reinforcing loops to represent more specific problems.
- *As a tool to introduce system dynamics:* System archetypes can be useful to introduce basic concepts of system dynamics to others because they may provide language for and visual representation of problems that people have experienced and intuitively understand

+ CONSIDERATIONS

- *System archetypes should not be used prescriptively:* System archetypes are not meant to erase the uniqueness of a situation. Oversimplifying a problem or jumping to the conclusion that it is best represented by an archetype can impede the creative and iterative process that makes system dynamics modeling so useful for thinking and dialogue.
- *System archetypes may not be necessary:* Jumping in to use archetypes when facilitating a group model building workshop or community session has the potential to reinforce a dynamic of expert vs. novice. The modeler draws on their modeling “expertise” to diagnose an archetype in a way that overshadows the lived experience of the participants, who actually understand their situation more deeply. These individuals or groups may not want or need intellectualized external labels to be placed on their model.

+ GETTING STARTED

Map a system archetype onto a problem or dynamic you see in your work

- How does this framing change or refine how you think about the problem?
- What solutions does this archetype suggest?
- How do you see this fitting into your teaching/facilitation/management/leadership?

+ ACKNOWLEDGEMENTS

- The system archetypes described here are inspired from and adapted from resources available on systems thinking. Some recommended resources include work by Peter Senge, including the book “The Fifth Discipline” and “Schools that Learn”. The Systems Thinker and Pegasus communications has useful resources, and the Waters Center for Systems Change has great resources on adapting systems archetypes to educational settings.
- The examples and stories presented here are inspired from collaborations with students and staff at Jennings High School, Ritenour High School, with SKIP in St. Louis, MO, and with the Center for Health and Health Care in Schools at George Washington University.

+ SUGGESTED CITATION

Branz, M, Farrell, A., Hu, M., Liem, W. & Ballard, E. (2021). *System Archetypes*. Methods Brief Series 1.07: Systems Thinking Foundations. Social System Design Lab: St. Louis, MO. <https://doi.org/10.7936/c89k-d163>

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+ ABOUT THE SERIES

Social System Design Lab Methods Briefs are short, digestible notes on applications of system dynamics and systems thinking in community settings. They are meant to capture and share out our current thinking on core ideas.

“Series 1: Systems Thinking Foundations” focuses on introducing core concepts of systems thinking and system dynamics as they relate to issues of education equity. This series draws from community-based modeling work with educators and students over the last ten years. Other briefs in this series include:

- Systems Thinking Iceberg | **1.01**
- Characteristics of Complex Problems | **1.02**
- Mental Models | **1.03**
- Framing Dynamic Problems | **1.04**
- Understanding Systems from a Feedback Perspective | **1.05**
- Accumulations | **1.06**

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